

Notice of Allowability

Application No.

10/024,646

Examiner

John J. Tabone, Jr.

Applicant(s)

KLEVELAND ET AL.

Art Unit

2138

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE and IDS's filed 12/06/2006 and 02/02/2007.
2. ☒ The allowed claim(s) is/are 1-43.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 12062006, 02022007
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.


GUY LAMARRE
PRIMARY EXAMINER

DETAILED ACTION

1. Claims 1-43 remain pending in the current application and have been examined. Claims 1-3, 5-9, 18, 28, 30-32, 36, 37, 40 and 41 have been amended. (from NoA of 09/22/2006).

2. **UPDATE:** This Notice of Allowance is in response to the RCE and IDS's filed on 12/06/2006 and 02/02/2007.

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 12/06/2006 has been entered.

Information Disclosure Statement

4. The information disclosure statement(s) (IDS) submitted on 12/06/2006 and 02/02/2007 were filed after the mailing date of the Notice of Allowance on 09/22/2006. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Response to Arguments (Updated)

5. Applicant's arguments, filed 05/30/2006, with respect to independent claims 1, 18 and 36 have been fully considered and are persuasive. The rejection of claims 1-43 have been withdrawn.

6. The information disclosure statement (IDS) submitted on 12/06/2006 and 02/02/2007 were filed after the mailing date of the Notice of Allowance on 09/22/2006. The references contained in the IDS does not affect the Reason for Allowance as set forth in the previous Notice of Allowance on 09/22/2006.

Allowable Subject Matter

7. Claims 1-43 are allowed.

The following is an Examiner's Statement of Reasons for Allowance:

The present invention relates to detecting an error while attempting to field program a primary block of a field-programmable memory array and in particular a three-dimensional memory array of vertically-stacked field-programmable memory cells.

The claimed invention as set forth in independent claims 1, 18 and 36 recites features such as: a field-programmable memory array with a primary and redundant block of cells. While attempting to write during field programming the memory array, an error is detected and, in response to the detection, field programming a flag in the bad memory cell and field programming a corresponding redundant cell instead.

The prior arts of record teach a three-dimensional memory array of vertically-stacked field-programmable memory cells which are field programmed in order to field repair the memory array. The prior arts of record also teach leftover or redundant cells which are used to field program a license number, which is later checked by a license checker or validator. The error detection method in the prior arts of record is a write-read-compare approach; Bailis et al. (US-6545501), Lien et al. (US-6446242) and Johnson et al. (US006034882) are examples of such prior arts.

The prior arts of record, however, fail to teach, singly or in combination, the step of while attempting to write during field programming the memory array, an error is detected. This is more of a sensing-while-programming approach. As such, modification of the prior art of record to include the claimed *step of while attempting to write during field programming the memory array, an error is detected* can only be motivated by hindsight reasoning, or by changing the intended use and function of the prior art themselves. Therefore, it is not clear that one of ordinary skill in the art at the time of the invention would have made the necessary modifications to the prior art of record to encompass the *step of while attempting to write during field programming the memory array, an error is detected* set forth in the present application. Moreover, none of the prior arts of record, taken either alone or in combination, anticipate nor render obvious the *step of while attempting to write during field programming the memory array, an error is detected* as set forth in independent claims 1, 18 and 36. Hence, claims 1-43 are allowable over the prior arts of record.

The Examiner agrees with the Applicant's arguments with regard to this feature in view of the arts of record; therefore, the Examiner favors the allowance of claims 1-43. Any comments considered necessary by applicant must be submitted no later than the payment of the Issue Fee and, to avoid processing delays, should preferably accompany the Issue Fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Tabone, Jr. whose telephone number is (571) 272-3827. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


John J. Tabone, Jr.
Examiner
Art Unit 2138
2/15/07